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CLAIMS

1. Method of fabricating a stacked structure, characterized in that it comprises the following steps:

5       a) a first plate (1) and a second plate (5) are selected such that at least one of said first (1) and second (5) plates has a "structured" surface (2; 7), at least in part,

10      b) a sacrificial layer (3; 8) is produced on at least a portion of the surface (2) of the first plate and/or the surface (7) of the second plate (5), and

      c) the two plates (1; 5) are bonded together.

2. Method according to claim 1, characterized in that said surface (2; 7) is structured by reason of its physical-chemical nature.

15      3. Method according to claim 1, characterized in that said surface (2; 7) is structured by reason of a roughness ( $r'_{\alpha}$ ,  $r'_{\gamma}$ ) greater than a predetermined threshold.

20      4. Method according to claim 3, characterized in that said predetermined threshold is equal to approximately 0.2 nm RMS.

      5. Method according to any one of the preceding claims, characterized in that at least one of said plates (1; 5) initially has a surface layer (6; 9).

25      6. Method according to claim 5, characterized in that said surface layer (6; 9) is monocrystalline.

      7. Method according to claim 5 or claim 6, characterized in that said surface layer (6; 9) is of silicon.

30      8. Method according to claim 5, characterized in that said surface layer (6; 9) has the effect of structuring said surface (2; 7) because of the physical-chemical nature of that surface layer (6; 9).

      9. Method according to claim 8, characterized in that said surface layer (6; 9) is of silicon nitride.

10. Method according to any one of the preceding claims, characterized in that the free surface (4; 10) of the sacrificial layer (3; 8) and/or the free surface of one of said plates (1; 5) is smoothed before said step  
5 c).

11. Method according to any one of claims 1 to 10, characterized in that the bonding of said step c) is molecular bonding.

12. Method according to any one of claims 1 to 10,  
10 characterized in that the bonding of said step c) uses a sacrificial bonding agent.

13. Method according to any one of the preceding claims, characterized in that the bonding of said step c)  
15 is assisted by mechanical means and/or plasma treatment and/or thermal treatment, these operations being carried out before or during bonding, in a special atmosphere or in the open air.

14. Method according to any one of the preceding claims, characterized in that at least one of the two  
20 plates (1) and/or (5) is thinned after said step c).

15. Method according to any one of the preceding claims, characterized in that the massive portion of at least one of the plates (1; 5) consists of a semiconductor material.

25 16. Method according to claim 15, characterized in that said massive portion consists of silicon.

17. Method according to any one of claims 1 to 16,  
characterized in that the sacrificial layer (3; 8)  
30 consists of silicon oxide.

18. Method according to any one of claims 1 to 16,  
characterized in that said material constituting the  
sacrificial layer (3; 8) is a polymer.

19. Stacked structure (100), characterized in that it is fabricated by means of a method according to any  
35 one of claims 1 to 18.

20. Stacked structure (100), characterized in that it comprises a sacrificial layer (3, 8) between a first substrate (1) and a second substrate (5) and in that at least one of said first (1) and second (5) substrates has  
5 a "structured" surface (2; 7), at least in part.

21. Stacked structure according to claim 20, characterized in that said surface (2; 7) is structured by reason of its physical-chemical nature.

22. Stacked structure according to claim 20,  
10 characterized in that said structuring of the surface (2;  
7) consists in a roughness ( $r'_{2z}$ ,  $r_7$ ) greater than a predetermined threshold.

23. Stacked structure according to claim 22,  
15 characterized in that said predetermined threshold is equal to approximately 0.2 nm.

24. Stacked structure according to any one of claims 20 to 23, characterized in that at least one of said substrates (1; 5) has a surface layer (6; 9).

25. Stacked structure according to claim 24,  
20 characterized in that said surface layer (6; 9) is monocrystalline.

26. Stacked structure according to claim 24 or claim 25, characterized in that said surface layer (6; 9) consists of silicon.

27. Stacked structure according to claim 24,  
25 characterized in that said surface layer (6; 9) has the effect of structuring said surface (2; 7) by reason of the physical-chemical nature of that surface layer (6;  
9).

28. Stacked structure according to claim 27,  
30 characterized in that said surface layer (6; 9) consists of silicon nitride.

29. Stacked structure according to any one of claims 20 to 28, characterized in that the massive  
35 portion of at least one of the substrates (1; 5) consists

of a semiconductor material.

30. Stacked structure according to claim 29, characterized in that said massive portion consists of silicon.

5 31. Stacked structure according to any one of claims 20 to 30, characterized in that the sacrificial layer (3, 8) consists of silicon oxide.

10 32. Stacked structure according to any one of claims 20 to 30, characterized in that the material constituting the sacrificial layer (3, 8) is a polymer.

33. Stacked structure according to any one of claims 20 to 32, characterized in that at least one of said substrates (1; 5) is a thin layer.